

REMARKS

The Rejections Under 35 USC §102

Claims 13,14,16,31,32, and 34 had been rejected under 35 USC §102(a) as being clearly anticipated by Perez. Applicants hereby traverse the rejection and strongly assert that, in fact, there are essential differences between Perez and the invention and that Perez does not anticipate Applicants' invention. Rejected claims 13, 14, and 16 directed to a method for preparing a microporous membrane and claim 31, 32 and 34 directed to the membranes themselves all contain the limitation "The microporous membrane comprising domains of a first polymer component uniformly distributed in a matrix of a second component, said second polymer component matrix comprising a *three dimensional reticulated or interconnected network of uniformly distributed microcracks of uniform dimension...*" (Page 5, lines 4-11 also claim 13 et seq.) The inclusions or domains of the minor component are optionally coated with compatibilizing block copolymer.

By contrast, the method and resulting membranes of Perez are entirely different. Perez provides oriented, melt processed films having at least one fibrous surface. The films of Perez comprise a continuous and a discontinuous phase, wherein the discontinuous phase serves to initiate voids which remain as substantially discrete, discontinuous voids in the continuous phase. These voids are a natural result of the Perez's method,

in which, as the film is stretched, the two components separate due to the immiscibility of the two components and poor adhesions between the two phases (col. 5, lines 44-51).

The distinctions between the subject matter of Claims 13,14,16,31,32, and 34 and the membranes of Perez is apparent. The method of the invention does not rely on the components exhibiting poor adhesion due to compatibilization and accordingly there is not necessarily the formation of discontinuous voids in the matrix of the major (i.e. continuous) phase in the fashion that is essential to the microporous structure of Perez. Rather, membranes of the invention develop a three-dimensional reticulated or interconnected network as mentioned above. However, it can be said that in the invention some void formation is incidentally possible at the interface between the phases but not at all necessary (as in Perez); furthermore any such incidental void formation would not normally affect the reticulated structure that is the defining attribute of the microporous membrane structure of the invention and is that which fundamentally distinguishes the invention from the teaching of Perez. Because the method of the invention is different, the resulting membranes comprise a totally different structure. Because Perez does not disclose membranes having a three dimensional reticulated or interconnected structure, the rejected claims are not anticipated by the teaching of Perez. Applicants accordingly request withdrawal of the rejection and reconsideration of the claims.

The Rejections of Claims 17-20 and 35-38 Under 35 USC Section 103

Claims 17-20 and 35-38 had been rejected under 35 USC Section 103 as obvious over Perez in view of Fischer (US Pat. No. 5,013,439). Applicants strongly traverse the rejection. First, Applicants wish to respectfully draw the Examiner's attention to what is apparently a misunderstanding of the teaching of Perez on page 4 of the Office Action. The Examiner has stated that "Perez teaches the hot stretching step at a temperature about 15 deg below the glass transition temperature of the minor component (first polymer: PBT...the glass transition temperature of PBT is $>190^{\circ}\text{C}$)". This value is wrong. In fact, as will be seen by reference to an authoritative source, the glass transition temperature of polybutylene terephthalate (PBT) is 50°C (see Charrier, J.M., "Polymeric Materials and Processing", Hanser Publishers, New York (1990) page 114). Thus, in actuality Perez is operating at a temperature far above the glass transition temperature of the minor component. Perez plainly says as much, stating "preferably the orientation temperature is above the glass transition temperature of the continuous phase" (col. 6, lines 13-17). By contrast, the method of the invention utilizes a different principle. As both Applicants' specification and claims make clear, "in a second hot stretching step, the cold stretching film is further stretched at a temperature of about 5°C to about 15°C below the glass transition temperature of the minor component, to a total increase in dimension of 100 percent to 700 percent.." (page 3, lines 19-22; page 6, lines 1-3; claim 19, etc.). Because of this essential difference, Perez does not, as Examiner asserted, "teach every element of claims 17-20 and 35-38 except for the first

cold stretch". Because the method of Perez utilizes a different temperature range than the invention, combination of Perez with Fischer does not make obvious the invention. Applicants request withdrawal of the rejection and reconsideration of the claims. Although the foregoing comments adequately overcome the rejection, the Examiner may also consider the following differences between Perez and the invention so that henceforth the differences between them will be clear.

As explained previously, the method of the invention and that of Perez are different, resulting in a different microporous structure. According to the invention, the major polymer component is present in an amount ranging from about 65% to about 99% by weight (claim 13). By contrast, the relative amounts of major and minor components are not constrained in Perez and "can vary widely, from 99:1 to 1:99 weight ratio" (col. 4, lines 53-55). If the more expansive polymer ratios of Perez are employed in Applicants' invention, the resulting membranes will have poor mechanical properties. Indeed, as Applicants' claims no more than 35% by weight of a second component should be employed in the method of the invention. Furthermore, because of the fundamental difference between the method of the invention and the teaching of Perez, the major phase of the invention could be any melt-processable polymer or copolymer (page 2, line 19 of specification). The teaching of Perez is limited, as the document itself declares, to "films comprising a melt processed immiscible mixture of a semicrystalline polymer component and a void initiating component" (col. 1, lines 60-62).

Further evidence of the structural difference between the membranes of the invention and those of Perez is provided by a comparison of Figure 1 of the invention with Figures 1-5 of Perez, in which the microfibrillated structure of the films of Perez's teaching is apparent. This comparison serves to further illuminate the fact that Perez does not disclose membranes having a three dimension interconnected or reticulated structure.

The Rejections of Claims 21-24, 26-30, 39-42, and 44-48 Under 35 USC Section 103

As shown above, the combination of Perez and Fischer does not teach every element of the claims because the hot stretching of Perez occurs at a temperature range unacceptable for practicing the invention. The further addition of Shibata to impart the notion that a compatibilizing copolymer would improve stretchability does not alter this conclusion and the rejected claims are not made obvious by the combination of Perez, Fischer, and Shibata. Applicants request withdrawal of the rejection and reconsideration of the claims.

The Rejections of Claims 15,25,33,and43 Under 35 USC Section 103

As has been amply demonstrated Perez does not teach the hot stretching step of the invention; therefore, the combination of Perez and JP58-020273, in which the latter reference is consulted to impart teaching an electrostatic spray coating does not render obvious to an ordinarily skilled person the rejected claims. Applicants accordingly request withdrawal of the rejection and reconsideration of the claims.

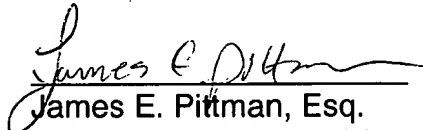
Fees

A check in the amount of \$55.00 is enclosed representing the cost of the One-Month Extension enclosed herewith. No further fees are believed to be required for this Amendment. However, should any further fees be necessitated hereby, authorization is hereby given to charge Deposit Account no. 11-1153 for any underpayment.

CONCLUSION

Entry of the foregoing remarks into the record of the above identified application is respectfully requested. Withdrawal of all rejections and reconsideration of the amended claims is requested. An early allowance is earnestly sought.

Respectfully submitted,


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